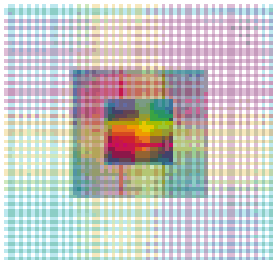


AUDIT II

Country Report
PORTUGAL

Carlos Gaspar
Final Report 05/06/2002

PORTUGAL

SUMMARY OF ENERGY AUDITING

The Portuguese energy policy serves numerous objectives such as, the reduction of energy dependence and development of endogenous resources, the oil dependence reduction and energy sources diversification, the reduction of environmental effects of the production and use of energy, the satisfaction of energy requirements at the lowest cost possible and finally the increase of energy efficiency.

The national energy policy of Portugal is laid out in the new integrated operational programme, called POE[1] (2000-2006). This programme serves the Portuguese energy policy objectives in yours 2.5 and 3.2 measures. However doesn't consider any specific measure to finance directly energy audits to energy audit programmes like RGCE[2].

An extensive legislative package to energy sector has been prepared, named 'E4 - Programme for energy efficiency and endogenous resources'. This packaged will integrates the green tariff for electric energy from endogenous resources and rules to aim at reinforce the electric distribution grid, with the purpose of make easier the connection of the independent producer to the grid; new legislation in order to expand the Portuguese electricity market, which includes the power plants system; and gather more legislation to renewable energy and regulations for energy management and rational use of energy in public buildings

In the past there has been quite a lot Energy Audit activities carried out by ADENE[3] (ex-CCE[4]) and other public and private companies, but nowadays, it exist only one ongoing programme with energy audits, the RGCE. This programme has been introduced in 1982 by governmental decree and it has been made mandatory for every company that apply for a grant's rational use of energy projects, with annual energy consumption higher than 11.63 GWh, to carry out an energy audit each 5 years and set-up as well implement an energy saving plan for the subsequent 5 years.

Energy Audit Programmes

There are no specific energy audit programmes. Although, energy audits are present in other important programmes promoted by the Ministry for Economy.

Other Programmes related to Energy Auditing

Regulation for Energy Management (RGCE)

The Regulation for Energy Management (RGCE) has been introduced in 1982 and targeted mainly at the industrial sector. RGCE applied to energy-intensive companies and established goals for the progressive reduction of specific energy consumption. In addition, RGCE has been made mandatory for every company that apply for a grant's rational use of energy projects, with annual energy consumption higher than 11.63 GWh, to carry out an energy

[1] POE – Operational Programme for Economic Activities
[2] RGCE – Regulation for Energy Management
[3] ADENE – Portuguese Energy Agency
[4] CCE – Centre for Energy Conservation

audit every 5 years and set-up as well implement an energy management plan for the subsequent 5 years. RGCE has also obliged companies to monitor their energy management plans in order to assure its successful implementation.

During 2000, 40 energy audits and energy management plans have been submitted to the Operating Agent - DGE[5]. Thirty-nine of these audits, corresponding to an energy consumption of 2301.1 GWh per year, have already been evaluated. The expected energy savings are estimated to be about 64.5 GWh/year. In the period of 1986-2000, 787 energy audit reports have been submitted to DGE and the cumulative potential of energy savings calculated in those industrial sites represented about 11 611 GWh (i.e. about 25.1% of the sites total energy consumption).

POE - Operational Programme for Economic Activities - measures 2.5 and 3.2 (2000-2006)

The national energy policy of Portugal is laid out in the new integrated operational programme, called POE (2000-2006). This programme was designed to stimulate Portuguese enterprises of the industrial (building construction included), tourism, and trade and services sectors to increase their productivity and competitiveness within the global market.

The POE, which is under the 3rd Support Community Framework (CSF) for European Community Member States, provides financial incentives for energy efficiency and renewable energy projects and supports the diversification of energy supply with the objective of competitiveness reinforcement.

POE is separated in three axes, with 14 measures of global application. The measures 2.5 and 3.2 have the specific goal of improving the energy efficiency, diversification of energy sources (mainly by the introduction of natural gas) and increasing the use of indigenous energy sources.

Future plans

ADENE within partnerships with other public and private entities, such as IST[6], ISQ[7], INETI[8], etc., has several proposals presented to POE for programmes with energy audits. Some of these proposals are:

- **Global Strategy of Intervention in the buildings energy field.**
- **Global Strategy for the energy efficiency in industry.**
- **Internationalisation of Industry Sector in the Energy Area.**

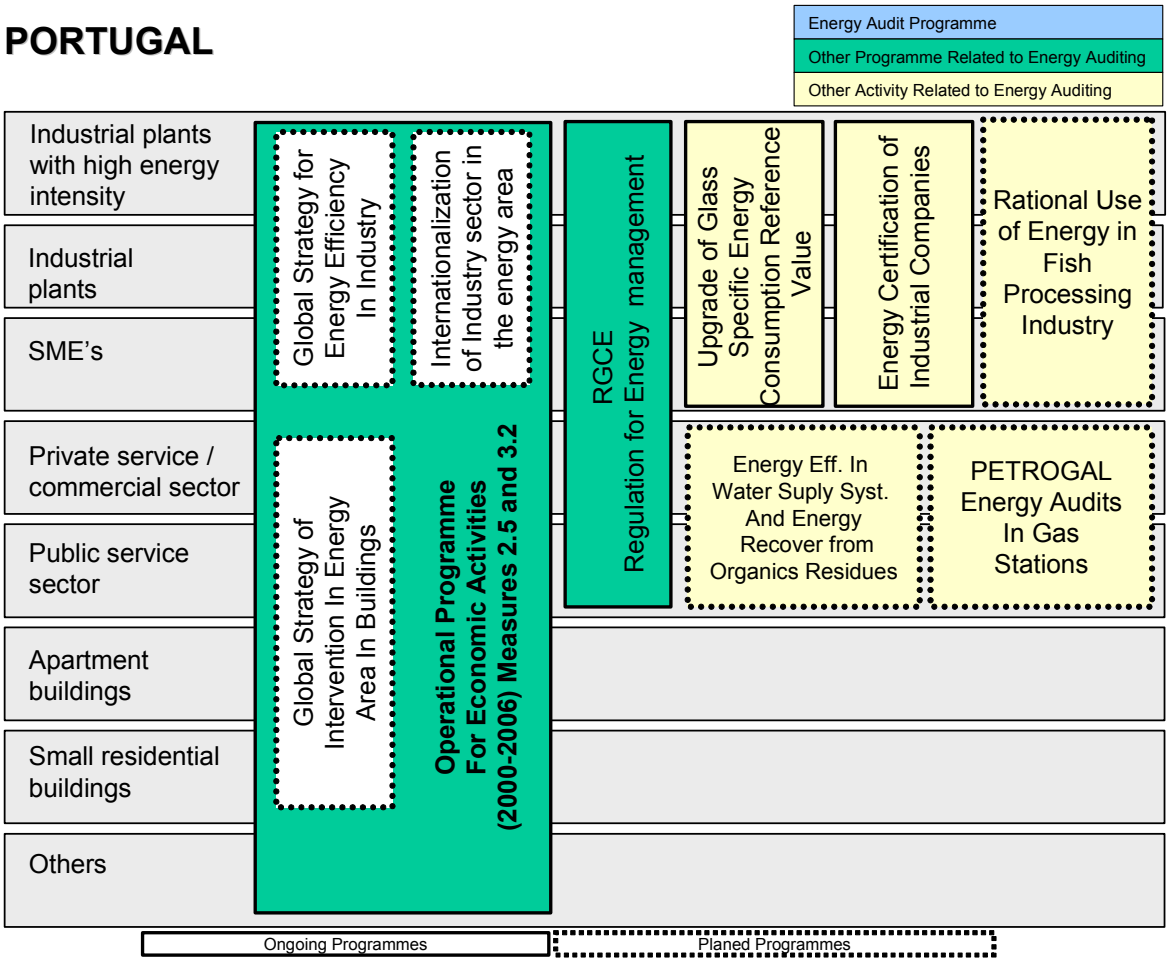
There are two programmes with energy audits carried out by ADENE in the beginning phase:

- **Upgrade of glass specific energy consumption reference values of the Regulation for Energy Management (RGCE)**
- **CEEI – Energy Certification of Industrial Companies**

[5] DGE – Directorate General for Energy
[6] IST – Instituto Superior Técnico (from Technical University of Lisbon)
[7] ISQ – Institute for Welding and Quality
[8] INETI – National Institute of Engineering and Industrial Technology

Other Activities related to Energy Auditing

In the moment of this report, there weren't other activities related to energy audit, however ADENE has some activities forecasted with energy audits which are waiting for co-financing.



Information on Programme Properties

	RGCE – Regulation for Energy Management	***POE – Operational Programme for Energy Conservation***
Status	1982 - …..	2000 - 2006
Administration	+++	+++
EA models	+++	
Auditors' Tools	++	
Training, Authorization and Quality Control	+++	
Monitoring	+	
Audit Volumes and Results	+++	
Evaluation	+	

Contact Persons

	RGCE	***POE (measures 2.5 and 3.2)***	***Other Programmes***
Organization	DGE – Direcção Geral de Energia	DGE – Direcção Geral de Energia	ADENE – Agência para a Energia
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Country Report

Country Report written by: Carlos Gaspar - ADENE – Agência para a Energia

Disclaimer

The information contained in this report has been gathered from publicly available sources and through interviews. All efforts have been made to secure the veracity of the report, however the author(s) cannot guarantee the content.

COUNTRY REPORT - Table of contents

COUNTRY REPORT - PORTUGAL

1 Background and present national policy

1.1 Previous activities

Introduction

The priorities of national energy policy in Portugal have been presented for the first time through the issue of Regulation for Energy Management (RGCE), by governmental decree, in 1982, aiming at reducing the shortcomings existing within the country's energy system and at improving the facilities for the development of Portuguese endogenous resources.

Between 1982 - 2000, has been made many programmes and other activities related to energy audits, but nowadays the only ongoing programmes with energy audits are the RGCE and the POE.

In September of 2000, the Portuguese Ministry of Economy creates 'The Portuguese Energy Agency' (ADENE), a non-profit organisation with administrative and financial autonomy. ADENE succeeds and builds on the experience of CCE and CBE, two national organisations that have been merged together in 2001. ADENE pursues the goal of fostering and developing actions that contributes towards the fulfilment of the national energy policy in the fields of energy efficiency and renewable energy.

Activities of energy organisations

Since the late 80's, ADENE (ex-CCE) along with other organisations have been involved with numerous energy auditing activities. Energy efficiency activities in the framework of PEDIP II programme (1995-1999) covering textile, ceramics, food and drink sectors, have also been carried out by ADENE and INETI. Apart from ADENE, Directorate General for Energy has also involved several companies with energy auditing activities.

In the industrial sector, the Regulation for Energy Management (RGCE) that came into force only in 1986, made mandatory for the companies that apply for a grant's rational use of energy projects, with annual energy consumption higher than 11.63 GWh, to carry out an energy audit each 5 years, resulting in a reduction of specific energy consumption. Between 1997 and 1999 the CCE has carried twelve energy audits in five sectors with the purpose of upgrading the specific energy consumption reference values of the Regulation for Energy Management defined in late 80's by NIFES.

Furthermore, the Directorate General for Energy has launched a project aimed at characterising the energy consumption of the hotels sector in the south of Portugal. The energy audits for this project have been carried out by a consortium of 5 private companies (the operating agents) between 1999 and 2000, involving the realisation of 15 energy audits. In the same period, PEDIP II Programme has performed a project to characterise energy and environmental issues from steam and thermal fluid generators. To carry out this project ADENE and ISQ have made two hundred energy audits to the thermal plants of the enterprises, in almost industrial sectors. It has been analysed 149 steam generators and 51 thermal fluid generators, with a total consumption about 1 306.5 GWh/year. The total energy savings proposed was 315 GWh/year, about 24.1% of the total consumption, corresponding to a reduction of 3 412 900 Euros in the energy bill of the enterprises.

In the second half of 1999, ADENE has been involved in a programme named 'SME 2000 – Preparation of the Portuguese Enterprises for the XXI century', supported by IAPMEI[9]. This programme carried out fifty energy audits to small companies.

In 2000, ADENE and 3 more entities have carried a programme, financed by the European Programme LEADER II, with twenty energy audits to Guesthouses in the North of Portugal.

The energy assessment of new large public buildings at the design stage came into force in 1994 by the Council of Ministers Resolution nº 37/94, in order to assess their energy behaviour by means of a report, which includes additional recommended energy efficiency measures. This Resolution define that energy assessment should be made by ADENE (ex-CCE) and it is 50% co-financed by ADENE, the others 50% should be financed by the promoter of the project. In the energy assessment to the building projects, it has been verified the requisites of the RCCTE[10] and the requisites for the RSECE[11]. According to RCCTE which new buildings should have minimum thermal quality characteristics, in order to have a construction licence, regarding both winter and summer behaviour. According the Buildings HVAC systems regulations, the new HVAC systems should comply with a set of requirements in order to have an installation licence. Since 1994, ADENE has carried out almost 51 assessment report to new public building projects.

With the transition of the CCE to ADENE, there were some changes in the enterprise policy. The new enterprise policy of ADENE, in the energy audit field, isn't to execute the energy audits, but coordinate the energy audit programmes.

1.2 Present national energy policy

1.2.1 General goals

Energy policy in Portugal is actively engaged in an attempt to reduce the shortcomings existing within the country's energy system and to improve the facilities for the development of its endogenous resources. The main objectives of the Portuguese energy policy are:

- To reduce energy dependence and develop endogenous resources;
- To reduce dependence on oil and diversify energy sources
- To reduce the environmental effects of the production and use of energy
- To satisfy energy requirements at the lowest possible cost
- To increase energy efficiency

The national energy policy of Portugal is laid out in the new integrated operational programme, called POE - Operational Programme of Economy (2000-2006). POE is separated in three axes, with 14 measures of global application. This programme, which is under the 3rd Support Community Framework (CSF) for European Community Member States, serves the Portuguese energy policy objectives in yours 2.5 and 3.2 measures. The measure 2.5 has a budget of 473,9 millions of Euro.

[9] IAPMEI – Institute for Supporting and Financing SMEs and Investments
[10] RCCTE – Thermal Regulation for the Building Envelope
[11] RSECE - Buildings HVAC systems regulation

The POE provides financial incentives to energy efficiency and renewable energy projects and supports energy supply diversification with the objective of reinforcing the competitiveness. Further on, SIME[12] (a sub-programme in POE) provides incentives for integrated projects that could contemplate the energy efficiency component.

At this time, an extensive legislative package to energy sector has been prepared, named 'Programme for energy efficiency and endogenous resources' - 'Programa para a Eficiência Energética e Energias Endógenas'. This packaged will be submitted to the Ministry Council in three parts.

The first one will be submitted until the end of September of 2001 and integrates the green tariff for electric energy from endogenous resources and rules to aim at reinforce the electric distribution grid, with the purpose of make easier the connection of the independent producer to the grid. These measures are integrated with the POE.

The second part of the package, which should be submitted until the end of 2001, embodies new legislation in order to expand the Portuguese electricity market, which includes the power plants system.

The third part, previewed for the first quarter of 2002, gather more legislation to renewable energy and regulations for energy management and rational use of energy in public buildings.

1.2.2 Future Plans

ADENE has some projects forecasted with energy audits which are waiting for co-financing, such as:

- **Rational Use of Energy in Fish Processing Industry**
- **Energy Efficiency in Water Supply System and Energy Recover from Organic Residues**
- **PETROGAL - Energy Audits in Gas Stations**
- **Energy Certification of Industrial Companies**
- **Upgrade the Glass Specific Energy Consumption Reference Value**

European Building Sector Directive

Other measures under preparation or planned to be introduced soon in the Portuguese building sector is in the framework of the directive of the European Parliament and the Council on the Energy Performance of Buildings, these measures are:

- A building energy certification legislation, prepared by DGE for a voluntary classification for new buildings according to their energy performance;
- The energy labelling of dishwashers and lamps.

[12] SIME – Business Modernisation Incentive Scheme

In the building sector, the existing mandatory energy efficiency mechanisms are the following:

- The thermal regulations for the building envelope, since 1991, according to which new buildings should have minimum thermal quality characteristics in order to have a construction licence, regarding both winter and summer behaviour;
- The Buildings HVAC systems regulations are in force since 1998, according to them, the new HVAC systems should comply with a set of requirements in order to have an installation licence;
- The energy labelling of refrigerators, washing machines, dryers, washer-dryers: followed the relevant European Directives;
- The minimum energy efficiency standards for new hot water boilers, in force since mid 1996;
- The energy assessment of new large public buildings at the design stage.

2 Energy Audit Programmes

There are no specific energy audit programmes. Although, energy audits are present in other important programmes promoted by the Ministry for Economy.

3 Other Programmes related to Energy Auditing

3.1 Regulation for Energy Management (RGCE)

3.1.1 Goals

The Regulation for Energy Management has been introduced by governmental decree in 1982, although, in practice, it has begun only in 1986. RGCE targeted mainly at the industrial sector, to energy-intensive companies. This programme establishes goals for the progressive reduction of specific energy consumption. In addition, RGCE has been made mandatory for every company that apply for a grant's rational use of energy projects to carry out an energy audit every 5 years and set-up as well as implement an energy management plan - PRCE[13] for the subsequent 5 years. Energy-intensive companies are those with annual energy consumption higher than 11.63 GWh. RGCE has also obliged companies to monitor their PRCE in order to assure its successful implementation.

With the specificity of the transport sector, namely the variability of factors that influence the energy consumption, showed the need of a property regulation for this sector. The governmental decree nº 228/90 of 27 of March approves the Regulation for Energy Management to Transport Sector, but only has been introduced in January of 1991. The RGCE - transports, is applied to transports companies and companies that have own fleets with annual energy consumption higher than 5.815 GWh.

[13] PRCE – Energy Management Plan

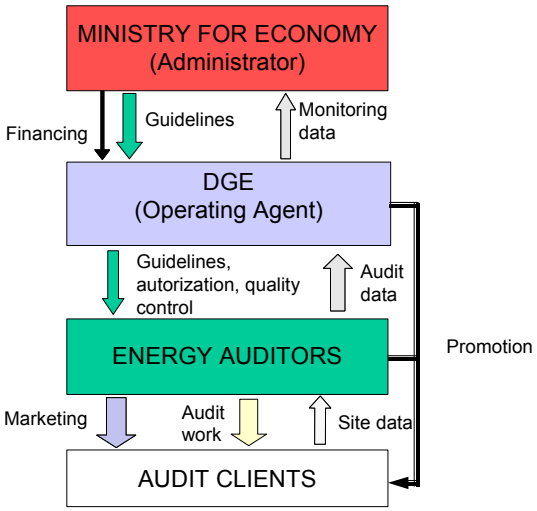
3.1.2 Target sectors

The main sectors targeted by RGCE are the transportation and industrial sectors, such as food and drinks, wood and cork, textiles, pulp and paper, chemistry, cement and glass.

3.1.3 Administration

DGE, under the Ministry for Economy, has the management of the Regulation for Energy Management.

The licensed auditors, contracted by audited companies, send the energy audit reports to DGE in order to be evaluated by them.



3.1.4 Implementing Instruments

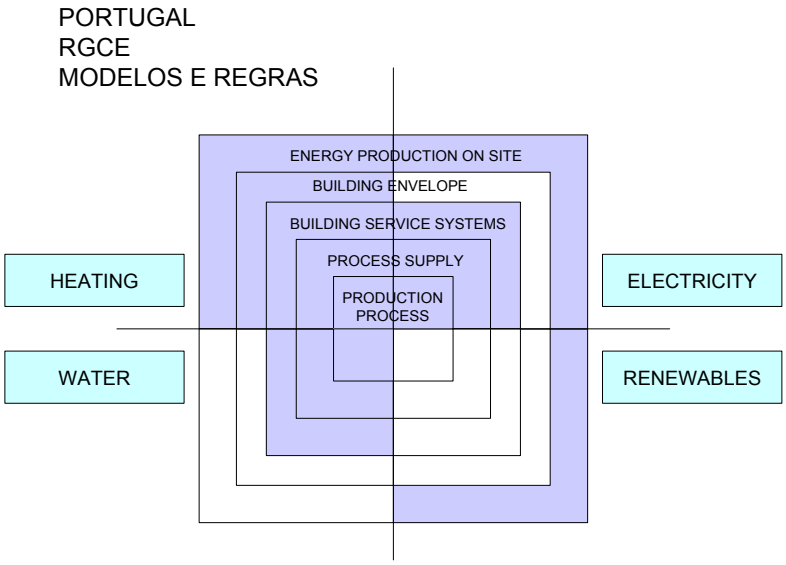
Nowadays, there aren't any subsidies to support energy audits. As it is an obligation, it isn't correct financing it, but the potential energy investments included in the energy management plan is financially supported by POE - measure 2.5.

The RGCE has been created by the governmental decree nº 58/82 - 26 of February of 1982, although it has been in force in 1986. Meanwhile it was been elaborated other mandatory documents which defines the specific energy consumption reference values for specific sectors.

In order to promote the RGCE and the energy efficiency in general, CCE has been in charge of carry out a programme named 'Energy Bus', from 1988 to 1993. For the completion of this activity, 400 energy audits have been carried out, mainly in the industrial sector.
Nowadays there isn't any specific promotion of the RGCE programme. But the enterprises must do the energy audits in order to have access to the public incentives for energy projects investments.

3.1.5 Energy Audit Models

The programme administrator (DGE) recommends a global Audit Model named ‘Models and Rules’ - 'Modelos e Regras' to the energy auditors. These guidelines were congregated in a book available in the DGE Library. It has been developed by CCE in 1990, and updated recently by DGE.



As we can see in the picture the audit model ‘Models and Rules’ includes:

- auditing of the production process
- auditing of the energy production on site (heat, power, CHP, renewables)
- measurements on energy use
- Sankey-diagrams or other presentations on consumption breakdown

The recommended Audit Model is available to all sites, including energy audits in buildings, with the respective modifications. According to this model, an energy audit has as main objectives:

- To check on the transport installation and energy distribution conditions;
- To check on the control equipment existence and the conversion and energy use equipment regulation;
- To do massif and energetic balance to the equipment which are considered intensive energy consumers, noting it’s consume and it’s efficiency consequently;
- To do a massif and global energetic balance to the installation;
- Quantify the use and costs with energy form;
- To determine the specific consume of energy of the intensive energy consumers equipments;
- To observe the connection between the global consume of energy and the production, determinating an energetic indicator of great relevance, the specific energy consume;
- To establish relations between energy consume of each productive sector and it’s respective production, determinating it’s specific energy consume;
- To examine in detail the way how energy is used in the global installation, identifying waste situations;
- To propose corrective measures and analyse technical and economical solutions which have been found.

The efficient conduction of an energetic audit is a process that involves some tasks to develop in a correct order and sequence, such as the detailed analysis of the preceding years energy bills and detailed physical analysis to the equipments that are generators and/or consumers of termical and electric energy existent in the installation, it's function and control conditions, such as the maintenance care and function time, until the last phase of the study in which are indicated the results and measurements to reduce energetic consume in specific areas.

Audit phases depend on its goals and on the dimension and type of installations to audit. In general, we can consider the following phases:

- Planning
- Field work
- Information treatment
- Elaboration of the report with recommendation formulation
- Elaboration of the Rationalizing Plan of the Energy Consume

Planning

To this phase is attributed a great importance, once it is an essential step to the quality of the work to develop. Between the several tasks to do in this phase, the establishment of main objectives is very important, such as the selection of the audit team and the attribution of responsibilities to each member.

It should start with putting the factory information together, sending a questionnaire to fill in, which would be finished during the fieldwork.

During this phase, the company should give detailed information about the consumption and costs of energy, such as productions.

Elaboration of the fieldwork on the energetic audit

Once in the installations and always as necessary, the audit team should start with completing and correcting the information that has previously been requested to the factory.

The fieldwork is composed of the collect of all possible and useful information to the elaboration of the report, starting with doing all the necessary measurements to the identification of the real possibilities of economizing energy, checking the equipment which are considered the most energy consumers.

In this phase, all the essential elements, to the elaboration of the global balance to the installation and to the biggest energy consumer equipment, should be collected, to determine the energy consumption and suggest the regulation, control and more adequate maintenance, such as the implementation of an energy recuperation system.

The audit efficiency depends hardly on the work quality developed in this phase. Besides of a formation in the energy area, the local actuation requires a deep knowledge of the situations to analyse and of the technologies to use/available.

The fieldwork requires also, a permanent attention of the audit team, so that all the situations that can be corrected may be detected.

Information treatment

After the local actuation, the audit team should organize and treat all the collected information during the first two phases. The information treatment will privilege the production of indicators group and other results, of a quantifying nature, susceptible of allow a strict evaluation of the installation energy performance.

The audit team will calculate the consumption and costs for type of energy and for equipment and the global and partial specific consumption (by production areas and by energy intensive equipments). They will also determinate the energy efficiencies of the equipments that are considered the most energy consumers, which should be critically analysed and compared with the commercialised equipments that present good efficiency. The value of the specific consumption of global energy should be compared with the specific consumption of reference, which is defined to the referred activity. It will be necessary to analyse in detail the sequential implement of the equipment, to check the procedures correction and identify possible changes that might conduce to an increase of the energy efficiency, without affect the final quality levels.

Detected all the bad energy utilization situations, the audit team will study the possible solutions to implement to correct the anomalies. A technical-economical analyse will be done to all the solutions that might eventually be implemented and quantified the potential energy economies.

Elaboration of the energy audit final report

After concluding the treatment of the collected information during the fieldwork, an Energy Audit report will be done.

Of all the descript actions should result all the necessary information to do the identification of the different types of energy used in the installation and how they are consumed, to the characterisation of the energy conversion systems and to the evaluation of it's function situation, such as to the energy consumption determination of each energy use of the factory. This information, associate to the costs structure of the several forms of energy, allows the technical-economical evaluation of the main measurements of the Rational Energy Utilization.

Chapters to include on the report:

- Factory Characterization
- Factory's Energy Characterization (last 5 years);
- Energy consumptions and costs by months (last 12 months available);
- Specific Energy Consumptions;
- Energy Consumptions Distribution by sector and type of utilization;
- Intensive Energy Consumers Equipments Analysis;
- Auxiliary Services;
- Potential Energy Economies Resume;
- Conclusions.

As a final result of the energy exam to the installation, it will be done a Energetic Consumptions Plan of Rationalization, where it will be included the measurements proposals of energy economy, which reveal being opportune in a technical and economical point of view, including an implementation plan to the following 5 years.

3.1.6 Auditors' Tools

DGE recommends the use of a software named 'SAPRA'[14], to help the auditor to fulfil out the PRCE and their Annual Monitorisation Plan.
SAPRA is a software aimed to help the auditor to make the PRCE - Energy Management Plan and the Annual Monitorisation Plan of the PRCE, automating a substantial part of work involved in the elaboration of these plans. This software tool has developed by INESC[15].

The DGE has edited a collection of 22 guidebooks named 'Manuais de Conservação de Energia' - 'Energy conservation guidebooks', correspond which one to an activity sector mentioned on the RGCE. These Guidebooks have information about the production processes, energy savings in the respective activity sector and a form with some formulas and examples in order to help the auditor to make mass and energy balances.

DGE also co-financed a SAVE Project which developed a software tool called EMAT (Energy Manager's Tool). This tool have some examples and exercises in order to help energy managers to identify RUE potential in Boilers, Compressed Air, Electric Motors and Insulation.

3.1.7 Training, authorisation and quality control

There isn't any specific training for energy auditors. But to be an energy auditor must have some basic requirements, such as be an engineer or technique-engineer, has five years of experience in the activity sector that he will make the energy audit, must has access to measurement equipment.

The energy auditors should make a requirement to DGE in order to have the authorization. If all requirements are fulfil, the operating agent (DGE) gives the authorisation, for a period of five years. This authorisation can be given for a single person or for a company and only for specific activity sectors.

The authorisation of the auditor is checked by DGE with the auditor number and with the responsibility term in the energy audit.

The quality of the work of the auditor is checked only on the energy audit report.

Since the beginning of the RGCE programme and until August of 2001, was given ninety authorisations to new energy auditors for different activity sectors. Almost all of these authorizations are valid at this time.

ADENE, with the support of DGE and programme PEDIP II, organised several training courses around the country for Energy Manager's.

3.1.8 Monitoring

The reduction of energy consumption must, on the same way of any management technique, have concrete objectives to reach. In the way of help the consumers, the RGCE suggest a calculation method to determine the goals for progressive reduction of specific energy

[14] SAPRA - Help System to Perform Energy Management Plans
[15] INESC - Institute of engineering of systems and computers

consumption in a 5-year period. The general principle consist in preview, in each 5-years period, a reduction to half of the subtraction between the real specific consumption, found in energy audit, and the specific energy consumption of reference, defined by DGE for several products, production processes or activity sectors.

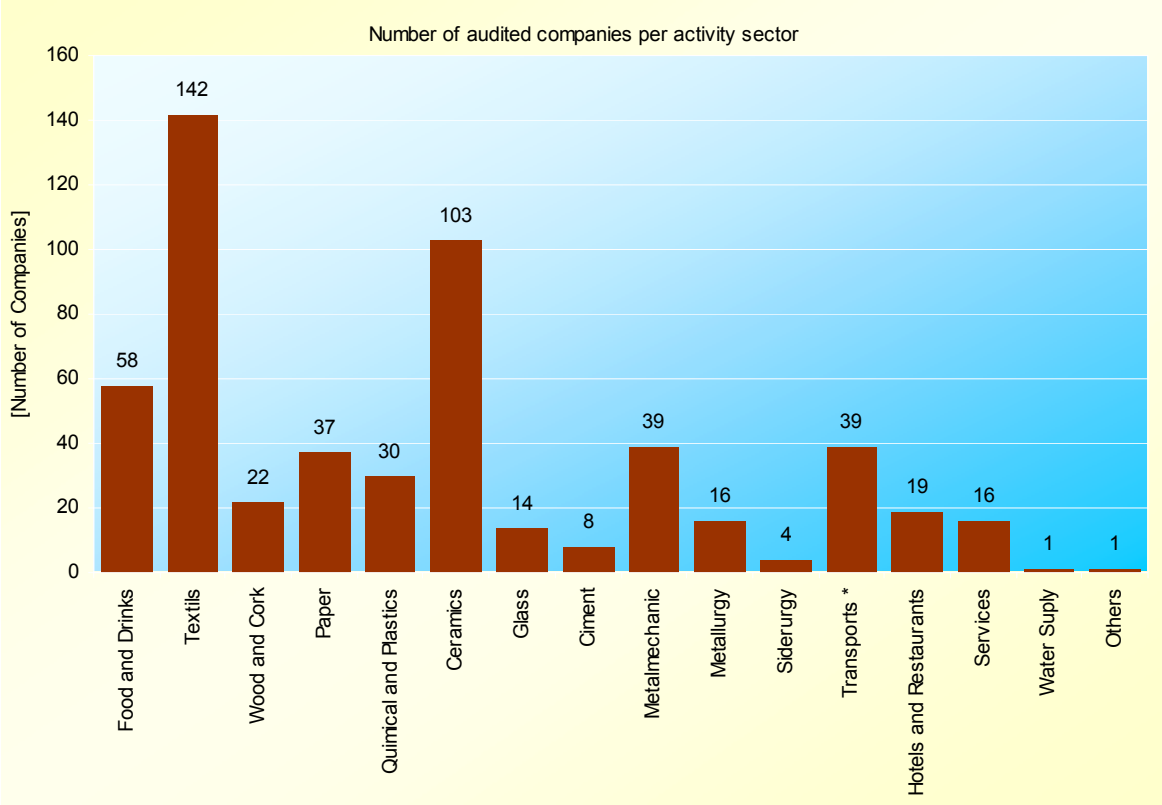
Every year, the companies must send to DGE the 'Annual Monitorisation Plan of the PRCE'. This plan must contain data like productions, energy consumption and specific energy consumption.

DGE undertakes monitoring and evaluation of the RGCE, in order to check the development of the energy consumption and the specific energy consumption of the audited companies. This monitoring and evaluation is congregated in a database of energy efficiency indicators. These indicators are productions, energy consumption, specific energy consumption and other data that are in the PRCE.

3.1.9 Auditing volumes

During the year 2000, 40 energy audits and energy management plans have been submitted to DGE. Thirty-nine of these audits, altogether corresponding to an energy consumption of 2 301.1 GWh, have already been evaluated by two persons involved in this programme.

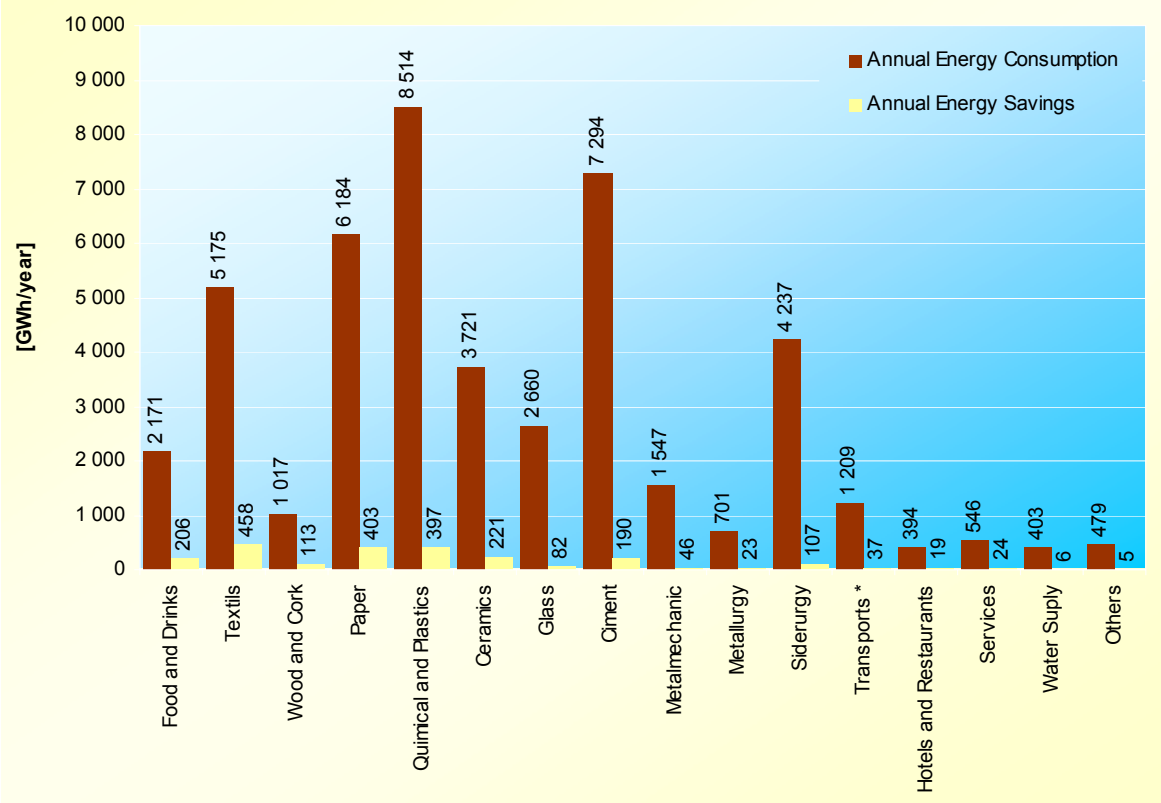
From the beginning of the programme in 1986 to 2000, 787 energy audit reports in 549 companies have been submitted to DGE. In the next figure we can see the number of audited companies by sector of activity.



3.1.10 Results

The expected energy savings presented in the 39 energy audits evaluated by DGE, in 2000, are estimated to be about 64.5 GWh per year.

The potential of energy savings calculated in the 787 energy audit reports that have been submitted to DGE in the period of 1986 to 2000 represented 2 337 GWh per year, i.e. about 5.1% of the sites annual energy consumption. In a 5-year period, the cumulative potential of energy savings calculated in those industrial sites represented about 11 611 GWh. In the next figure we can see the annual energy consumption and the annual energy savings of these companies by sector of activity.



Target specific energy consumption indices have been defined for each company and the actual energy consumption indices should present a 5% less difference from target values in the 5-year period.

3.1.11 Observations and Future Plans

In a near future, DGE forecast the upgrade of some specific energy consumption reference values of the Regulation for Energy Management (RGCE).

At the time of the publication of this report, ADENE has beginning the upgrade of the Glass Specific Energy Consumption Reference Value.

3.2 POE - Operational Programme for Economic Activities - measures 2.5 and 3.2 (2000-2006)

3.2.1 Goals

The national energy policy of Portugal is laid out in the new integrated operational programme, called POE - Operational Programme for Economic Activities (2000-2006). This programme was designed to stimulate Portuguese enterprises from the industrial (building construction included), tourism, trade and services sectors to increase their productivity and competitiveness within the global market.
The main objectives of the Programme are:

- To reinforce enterprise productivity and competitiveness, as well as their participation in the global market.
- To promote a new development potential.

When applied to the different activity sectors, these two main intervention goals at enterprise level develop into several specific goals.

INDUSTRY

- To promote the sustainable competitiveness of the industrial and building construction enterprises through technical, technological and marketing capacity reinforcement, and by improving human resources capacities.
- To favour productivity increases, through innovation, human resources, energy and environment efficiency, global quality and the active mobilisation of industry support infrastructures.
- To support the establishment of new and innovative sectors and activities with a high added value, and the setting-up of new competitive development areas.
- To support vocational training, maximising employability and adaptability to the systems' mutations.
- To develop a proactive action towards enterprise access to knowledge and markets.

TOURISM

- To promote and reinforce company competitiveness in the tourism sector.
- To support the emergence of new business areas, fostering the development of new tourist products.
- To act upon tourism critical factors on:
  - Consolidating the main active tourist centres;
  - Consolidating the existing tourism offer;
  - Promoting productivity increases at enterprise level;
  - Qualifying and enhancing the training of professional staff for and within the tourism sector;
  - Promoting the internationalisation of Portugal as a tourist destination.
- To support the internationalisation of the economic agents within the tourism sector.

TRADE

- To reinforce the trade sector competitiveness, especially the competitiveness of small and medium enterprises.
- To promote a progressive increase of the existing staff's qualifications and capacities.
- To foster the renewal of commercial entrepreneurs.
- To modernise and to reinforce the stimulating role-played by trade and services in rural and urban centres.

SERVICES

- To promote the development of an integrated service offer, increasing the quality and diversity of the sector offer, and contributing to reinforce the capacities of services companies.
- To promote the delivery of support services to commercial and industrial companies.
- To promote the qualification of the services offered to companies.
- To support human resources vocational training.

POE, which is under the 3rd Support Community Framework (CSF) for European Community Member States, provides financial incentives for energy efficiency and renewable energy projects and supports the diversification of energy supply with the objective of competitiveness reinforcement.

POE is separated in tree axis, with 14 measures of global application. The measures 2.5 and 3.2 have the specific objective of improve the energy efficiency, the diversification of energy sources (mainly by the introduction of natural gas) and the increase of the use of endogenous energy sources. All 3rd axis can provide financial incentives for public entities and partnerships, that will develop projects not only in the energy sector, but in others areas, like quality control, that influence and support the Competitive Development of the Business Environment, such as energy policy. This programme doesn't finance energy audits or energy audit programmes. Although, SIME - Business Modernisation Incentive Scheme provide incentives for integrated projects that contemplate the energy efficiency component.

The MEASURE 2.5 - Use Energy Potential and Streamline Consumption, support projects seeking the integration of new energy production centres within the energy system. These projects will foster the use of renewable energy sources; the rational use of energy, through the implementation of energy consumption management measures; the setting-up of combined production systems using thermal and electrical energy; and consumption transition towards natural gas.

The MEASURE 3.2 - Develop and Modernise Energy Infrastructures, support the competitive development of business environment with financial incentives for public entities and partnerships, that will develop projects in the energy sector, that influence the competitiveness of the Portuguese economy, such as energy policy.

The main goals of this programme are:

- To reduce the external dependency of the national energy system.
- To promote the development of endogenous energy resources, through the use of new and renewable energy sources.
- To stimulate energy efficiency and to reduce the country's energy intensity.
- To minimise the environmental impacts caused by energy production and consumption.

3.2.2 Target sectors

The measure 2.5 has as target group public and private funded bodies, namely municipalities, schools, health and social security institutions; energy production and distribution agencies and freight and passenger road transports, related to promoting the use of natural gas.

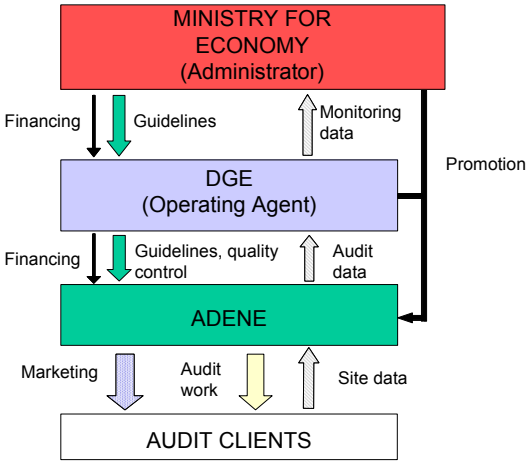
The target groups of measure 3.2 are public entities and partnerships that have developing projects not only in the energy sector, but in other areas too, such as quality control.

3.2.3 Administration

The co-ordination and the follow-up of the POE are directly connected with the Ministry for Economy and the administration of the programme is responsibility of the Directorates Generals of the Ministry of Economy and the Regional Directorates. In the next table we can see the organisation of the administration of the programme.

MINISTER			
Co-ordination and Follow-up - (President - Minister for Economy)			
Management	**EXECUTIVE DIRECTOR**		
Board of directors (extended)			
Managing Committee	Industry Energy Construction Transports	Vocational Training Office	DRR Norte DRR Centro
	Trade Services	Innovation Technological Infrastructure Office	DRR LVTejo DRR Alentejo
	Tourism	Association Partnership Office	DRR Algarve
Operational and Articulation			
Co-ordinating Bodies			
Competent Bodies			
Business Associations			
Ministries			
Local Authorities			
Co-ordination and Follow-up (President - POE CEO-Chairman)			
Programme Guidance and Monitoring Committee - PGMC			
Consultative Functions			
Consultative Committee			

The Directorate General for Energy (DGE) has the administration of the measures 2.5 and 3.2 of the POE. In the next figure we can see an example of an administration map for programmes included in the measure 2.5 or in the measure 3.2 and done by ADENE.



3.2.4 Implementing Instruments

POE has a web site with all actualised information about the programme (www.poe.min-economia.pt). In this web site we can find a description of the programme, the structure, the, framework, legislation and the approved projects for all measures. It is available a submission form where we can make ours new projects proposals on-line.

Workshops were made around the country with the aim of giving knowledge about the programme to the decision-makers of companies.

This programme supports projects that seeking the integration of new energy production centres within the energy system and the competitive development of business environment with financial incentives (+/- 40%) for private or public entities and partnerships, that will develop projects not only in the energy sector, but also in others areas.

This programme is supported by several legal documents, from which we put in relief:

- Despacho n.º 3674/2000
- Decreto-Lei n.º 70-B/2000
- Despacho n.º 13901/2000
- Despacho n.º 15021/2000
- Despacho n.º 15380/2000
- Despacho conjunto n.º 874/2000
- Despacho conjunto n.º 1058-A/2000
- Despacho n.º 22534/2000
- Despacho n.º 9387/2001
- Despacho n.º 9523/2001
- Despacho n.º 9898/2001
- Despacho n.º 17500/2001

3.2.5 Observations and Future Plans

This programme only finishes in 2006, and we can preview several proposals of projects in energy efficiency and programmes with energy audits.

ADENE within partnerships with other public and private entities, such as IST, ISQ, INETI, etc., has several proposal presented to POE for programmes with energy audits.
Some of these proposals are:

Global Strategy of Intervention in the buildings energy field.

This proposal aims:
The update of the existent regulations for buildings (RCCTE and RSECE);
Strategy for the energy rehabilitation of the stock built and to harness the use of energy efficient solutions in lighting and air conditioned systems;
Strategy for penetration of centralised management systems and energy control in the tertiary and residential sectors;
Strategy for the use of renewable energy sources in buildings;
Models of characterisation of the structure of the energy consumption;
Program of training in the energy management field.

Global Strategy for the energy efficiency in industry.

The set of actions proposed in the industry sector has as main objective the identification and implementation of rational use of energy measures in several sectors of the transforming industry, either for the definition of goals of consumption of energy and modelization of the same ones either for the penetration of more efficient technologies. This set of actions is justified due to the urgent need of reduce the energy intensity of the Portuguese industry.

Internationalisation of the Industry sector in the energy area.

The objectives of this proposal are: census and cataloguing of the national companies to the technological innovation and development of projects on energy efficiency and renewable energies; creation of inter-enterprise and trans-national institutional networks of technological co-operation; action plan to the implementation of clean development mechanisms at national level.
This action has been delayed.

4 Other Activities related to Energy Auditing

In the moment of this report, ADENE has in the beginning phase of two projects related to Energy Audits:

Upgrade of glass specific energy consumption reference value

This action has the issue of upgrade the reference value of the specific energy consumption in the glass sector. To carry out this project will be done six energy audits in companies with different production capacities. Will be study energy efficient technologies to be implemented in this sector.

Energy Certification of Industrial Companies

This action seeks to evaluate the potential of penetration of an Energy Certification of Companies in the sector of the Industry as platform of intervention of the National Energy Policy and as recognition of the action of rational use of energy of the companies that they adhere to the scheme that will be proposed.

This project has as base the following methodology:

- Definition of the model of Energy Certification to apply to the companies;
- Selection of one company included by RGCE and other not included that they want to adhere voluntarily to this action - during an experimental period of 1 year;
- Implementation of the model of CEEI during a period of one year articulated with the necessary technical support as well as the effective systems of incentives;

ADENE has some other activities forecasted with energy audits which are waiting for co-financing, such as:

Rational Use of Energy in Fish Processing Industry

This project has the main objective of characterise the energy consumption on fish processing sector.

Twenty-six energy audits will be performed in fish processing factories; a database of follow-up will be developed; and an electronic manual (in CD-ROM) with suggestion of energy efficiency measures in these industrial plants will be elaborated.

This action has been carried out by other entity, but there aren't results yet.

Energy Efficiency in Water Supply System and Energy Recover from Organic Residues

This project has the aim of the energy efficiency improvement in water supply systems and the valorisation of endogenous resources deriving from organic residues.

On the level of energy efficiency in the water supply systems, it will be done 30 energy audits and 5 feasibility studies in order to apply VSD (Variable Speed Drives) to the existent motors and high efficiency motors to replace the existent motors.

This action has been delayed.

PETROGAL - Energy Audits in Gas Stations

This project has the propose of making a pack of five energy audits in three different types of gas stations, owned by Galpenergia, SA.

Type A – Big gas stations localised in auto highways - Further on the sail of gas, this type of gas stations have other services like hotels, restaurants, tires-stores, car wash-stores and car maintenance-stores.
Type B – Gas stations with lower dimensions, but with some other services.
Type C – Small gas stations, only the gas station services.

European Building Sector Directive

Other measures under preparation or planned to be introduced soon in the Portuguese building sector is in the framework of the directive of the European Parliament and the Council on the Energy Performance of Buildings, one of these measures is:

- A building energy certification legislation, prepared by DGE for a voluntary classification for new buildings according to their energy performance